CLAIMS

What is claimed is:

1.   A method of imaging comprising the steps of:

positioning a subject in an imaging device;

5   performing at least one scout scan;

marking a user-defined region-of-interest (ROI); and

automatically adjusting an attenuation characteristic of an attenuation filter based on the user-defined ROI.

10   2.   The method of claim 1 further comprising the step of displaying a user interface through which the user-defined ROI is marked.

3.   The method of claim 2 wherein the user interface includes at least one cursor to allow a user to mark the user-defined ROI.

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4.   The method of claim 2 wherein the user interface includes a graphical representation of data received from the at least one scout scan.

5.   The method of claim 1 wherein the at least one scout scan includes at least

20   one lateral scout scan and at least one anterior-posterior (AP) scout scan.

6.   The method of claim 1 further comprising the step of determining a center of the user-defined ROI.

25   7.   The method of claim 6 further comprising the step of determining an offset from isocenter to the center of the ROI and repositioning the subject to align the center of the ROI with isocenter.

8.   The method of claim 1 further comprising the step of automatically

30   repositioning the subject to optimize image quality of the user-defined ROI.

9.   The method of claim 1 wherein the step of automatically adjusting includes the step of dynamically adjusting the attenuation characteristic of the attenuation filter to follow a sineogram of the user-defined ROI.

5   10.   The method of claim 1 wherein the user-defined ROI is defined in three dimensions.

11.   A tomographic system comprising:

a rotatable gantry having a bore centrally disposed therein;

10   a table movable within the bore and configured to position a subject for tomographic data acquisition;

a high frequency electromagnetic energy projection source positioned within the rotatable gantry and configured to project high frequency electromagnetic energy toward the subject;

15   a detector array disposed within the rotatable gantry and configured to detect high frequency electromagnetic energy projected by the projection source and impinged by the subject;

an attenuation filter positioned between the high frequency electromagnetic energy projection source and the subject; and

20   a computer programmed to:

display a user interface including an illustration of a position of the subject and allow selection of a ROI; and

determine an attenuation profile of the attenuation filter based on the user-selected ROI.

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12.   The system of claim 11 wherein the user interface includes at least one cursor to allow a user to define the ROI on the illustration.

13.   The system of claim 12 wherein the computer is further programmed to

30   determine a center of the ROI and reposition the subject to align the center of the ROI

with isocenter to deliver a desired dose of high frequency electromagnetic energy to the subject consistent with the attenuation profile.

14.   The system of claim 11 wherein the computer is further programmed to determine the illustration from at least one scout scan.

15.   The system of claim 11 where in the computer is further programmed to determine a subject repositioning based on the ROI.

16.   The system of claim 11 wherein the attenuation filter includes a bowtie filter having multiple filtering elements dynamically positionable within a path of the high frequency electromagnetic energy.

17.   A computer readable storage medium having stored thereon a computer program representing a set of instructions which, when executed by at least one processor, cause the at least one processor to:

perform at least one scout scan;

display an interface including a reconstructed image from the at least one scout scan;

receive user-selection identifying a ROI; and

adjust at least one of an attenuation filter configuration and a subject position based on the ROI.

18.   The computer readable storage medium of claim 17 wherein the at least one processor is further caused to display a plurality of user-positionable markers that allow a user to define the ROI.

19.   The computer readable storage medium of claim 17 wherein the at least one processor is further caused to determine an attenuation pattern for the profile of the attenuation filter to dynamically control attenuation during data acquisition.

20.   The computer readable storage medium of claim 17 wherein the at least one processor is further caused to determine an attenuation pattern for the profile of the attenuation filter to follow a sineogram of the user-selected ROI.

5   21.   The computer readable storage medium of claim 17 wherein the at least one processor is further caused to determine an offset from isocenter to a center of the user-selected ROI.

22.   The computer readable storage medium of claim 21 wherein the at least
10   one processor is further caused to determine a position error of the subject to with respect to isocenter.